

Data Storage

Excess Notation

Excess Notation

Integer Representations

- ✓ fixed number of bits to represent each value
- ✓ Write down all bit patterns of the same length
- ✓ First bit pattern having 1 in the most significant bit is used to represent Zero
- ✓ Following values used to represent positive numbers and Preceding values to represent negative

Excess Notation

Integer

- ✓ **Representations**
notation is Excess of its original value in Binary
- ✓ 1011 represent 11 in Binary but here it is representing 3 (excess of 8).
- ✓ Excess 16 to represent 10000 as Zero
- ✓ Excess 4 to represent 100 as Zero

Excess 8

Bit pattern	Value represented
1111	7
1110	6
1101	5
1100	4
1011	3
1010	2
1001	1
1000	0
0111	-1
0110	-2
0101	-3
0100	-4
0011	-5
0010	-6
0001	-7
0000	-8

Excess Notation

Excess 4

Bit pattern	Value represented
111	3
110	2
101	1
100	0
011	-1
010	-2
001	-3
000	-4

Integer Representations

- ✓ Excess 4 to represent 100 as Zero
- ✓ Values are Excess of 4.

Excess Notation

Excess 4

Binary	Decimal	Excess 4	2's Complement
111	7	3	1-
110	6	2	2-
101	5	1	3-
100	4	0	4-
011	3	1-	3
010	2	2-	2
001	1	3-	1
000	0	4-	0

Summary

Excess

✓ **Notation**

- Representation of +ve and -ve numbers
- ✓ Conversions
- ✓ Easy to remember